

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A peptide of any one of (1) to (4) below:
 - (1) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1
 - (2) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2
 - (3) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes
 - (4) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such a lymphocytes.
2. (currently amended) A peptide of either (5) or (6) ~~(1)~~ ~~or (2)~~:
 - (5) ~~(1)~~ a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1
 - (6) ~~(2)~~ a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2.
3. (currently amended) A cancer vaccine comprising the peptide of claim 1 ~~or 2~~ as an active ingredient.

4. (original) A cancer vaccine of claim 3, wherein the cancer is an epithelial cancer.
5. (currently amended) A cancer vaccine of claim 3 ~~or 4~~, wherein the cancer is selected from the group consisting of large intestinal cancers, lung cancers, breast cancers, gastric cancers, buccal cancers, pancreatic cancers, esophageal cancers, nasopharyngeal cancers, uterine cancers, prostate cancers, and gallbladder cancers.
6. (currently amended) A cancer vaccine of claim 3 ~~any one of claims 3 to 5~~ which is used for a human having HLA-A2402 as a leukocyte antigen.
7. (currently amended) A cytotoxic T lymphocyte inducer comprising the peptide of claim 1 ~~or 2~~ as an active ingredient.
8. (original) A cytotoxic T lymphocyte inducer of claim 7 which is used for human having HLA-A2402 as a leukocyte antigen.
9. (currently amended) A polynucleotide of any one of (7) to (10) ~~(5) to (8)~~ below:
 - (7) ~~(5)~~ a polynucleotide consisting essentially of the base sequence represented by SEQ ID NO:10
 - (8) ~~(6)~~ a polynucleotide consisting essentially of the base sequence represented by SEQ ID NO:11
 - (9) ~~(7)~~ a mutant polynucleotide that hybridizes with a polynucleotide consisting of the base sequence represented by SEQ ID NO:10 under stringent conditions, and coding for a peptide capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes
 - (10) ~~(8)~~ a mutant polynucleotide that hybridizes with a polynucleotide consisting of the base sequence represented by SEQ ID NO: 11 under stringent conditions, and being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes.

10. (original) A gene therapy drug for an epithelial cancer comprising the polynucleotide of claim 9 as an active ingredient.

11. (original) A recombinant vector comprising the polynucleotide of claim 9.

12. (original) A transformant wherein the recombinant vector of claim 11 is introduced.

13. (currently amended) A process for producing a the peptide of claim 1 or 2, comprising the steps of cultivating the transformant of claim 12, and collecting the peptide ~~of claim 1 or 2~~ from the culture wherein the peptide is any one of (1) to (6) below:

(1) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 1

(2) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 2

(3) a mutant peptide consisting essentially of an amino acid sequence derived
from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or
substitution of one or more amino acids, the peptide being capable of forming a complex with
an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T
lymphocytes or induce such lymphocytes

(4) a mutant peptide consisting essentially of an amino acid sequence derived
from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or
substitution of one or more amino acids, the peptide being capable of forming a complex with
an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T
lymphocytes or induce such a lymphocytes.

(5) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 1

(6) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 2.

14. (currently amended) An antigen-presenting cell which was pulsed with the peptide of claim 1 ~~or 2~~ is pulsed.

15. (original) A cancer vaccine comprising the antigen-presenting cell of claim 14 as an active ingredient.

16. (original) A cancer vaccine of claim 15, wherein the cancer is an epithelial cancer.

17. (currently amended) A cancer vaccine of claim 15 ~~or 16~~, wherein the cancer is selected from the group consisting of large intestinal cancers, lung cancers, breast cancers, gastric cancers, buccal cancers, pancreatic cancers, esophageal cancers, nasopharyngeal cancers, uterine cancers, prostate cancers, and gallbladder cancers.

18. (currently amended) A cancer vaccine of claim 15 ~~any one of claims 15 to 17~~ which is used for a human having HLA-A2402 as a leukocyte antigen.

19. (original) A cytotoxic T lymphocyte inducer comprising the antigen-presenting cell of claim 14 as an active ingredient.

20. (original) A cytotoxic T lymphocyte inducer of claim 19 which is used for treating a human having HLA-A2402 as a leukocyte antigen.

21. (currently amended) A major histocompatibility antigen complex comprising a major histocompatibility antigen, and the peptide ~~of claim 1 or 2~~, wherein the peptide is any one of (1) to (6) below:

(1) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1

(2) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2

(3) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or

substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes

(4) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such a lymphocytes.

(5) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1

(6) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2.

or the tumor antigen epitope peptide present on the antigen-presenting cell of claim 14.

22. (currently amended) A major histocompatibility antigen complex of claim 21 comprising an HLA-A2402 molecule, a β 2-microglobulin, and the peptide ,wherein the peptide is any one of (1) to (6) below:

(1) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1

(2) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2

(3) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes

(4) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such a lymphocytes.

(5) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 1

(6) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 2

~~of claim 1 or 2~~ or the tumor antigen epitope peptide present on the antigen-presenting cell ~~of
claim 14.~~

23. (currently amended) A cancer vaccine comprising the major histocompatibility antigen complex of claim 21 ~~or 22~~ as an active ingredient.

24. (original) A cancer vaccine of claim 23, wherein the cancer is an epithelial cancer.

25. (currently amended) A cancer vaccine of claim 23 ~~or 24~~, wherein the cancer is selected from the group consisting of large intestinal cancers, lung cancers, breast cancers, gastric cancers, buccal cancers, pancreatic cancers, esophageal cancers, nasopharyngeal cancers, uterine cancers, prostate cancers, and gallbladder cancers.

26. (currently amended) A cancer vaccine of claim 23 ~~any one of claims 23 to 25~~, which is used for treating a human having HLA-A2402 as a leukocyte antigen.

27. (currently amended) A cytotoxic T-lymphocyte inducer comprising the major histocompatibility antigen complex of claim 21 ~~or 22~~ as an active ingredient.

28. (original) A cytotoxic T lymphocyte inducer of claim 27 which is used for treating a human having HLA-A2402 as a leukocyte antigen.

29. (currently amended) A major histocompatibility antigen complex tetramer comprising a major histocompatibility antigen and the peptide ~~of claim 1 or 2~~, wherein the peptide is any one of (1) to (6) below:

(1) a peptide consisting essentially of the amino acid sequence represented by
SEQ ID NO: 1

(2) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2

(3) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes

(4) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such a lymphocytes.

(5) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1

(6) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2 or the tumor antigen epitope peptide present on the antigen-presenting cell of claim 14.

30. (currently amended) A cytotoxic T lymphocyte which is obtained by stimulating peripheral blood lymphocytes using ~~one or more of (a) to (d) below:~~

~~(e) — the peptide of claim 1 or 2~~

~~(f) — the antigen-presenting cell of claim 14~~

~~(g) — the major histocompatibility antigen complex of claim 21 or 22~~

~~(h) — the major histocompatibility antigen complex tetramer of claim 29.~~

31. (currently amended) A cytotoxic T lymphocyte of claim 30 which is obtained by the steps of forming a complex between a major histocompatibility antigen complex and/or a tetramer thereof and a cytotoxic T lymphocyte by stimulating peripheral blood lymphocytes ~~using one or more of (a) to (d) defined in claim 30,~~ and isolating the cytotoxic T lymphocyte from the complex.

32. (currently amended) A passive immunotherapy drug comprising the cytotoxic T lymphocyte of claim 30 ~~or 31~~ as an active ingredient.
33. (original) A passive immunotherapy drug of claim 32, wherein the cancer is an epithelial cancer.
34. (currently amended) A passive immunotherapy drug of claim 32 ~~or 33~~, wherein the cancer is selected from the group consisting of large intestinal cancers, lung cancers, breast cancers, gastric cancers, buccal cancers, pancreatic cancers, esophageal cancers, nasopharyngeal cancers, uterine cancers, prostate cancers, and gallbladder cancers.
35. (currently amended) A passive immunotherapy drug of claim 32 ~~any one of claims 32 to 34~~ which is used for a human having HLA-A2402 as a leukocyte antigen.
36. (currently amended) A method of quantifying HLA-A2402-restricted cytotoxic T lymphocytes in peripheral blood, comprising ~~the steps of~~
making ~~one or more of~~ the following ~~(a) to (d)~~ act on peripheral blood:
(a) ~~the peptide of claim 1 or 2~~
(b) ~~the antigen presenting cell of claim 14~~
(c) ~~the major histocompatibility antigen complex of claim 21 or 22~~
(d) ~~the major histocompatibility antigen complex tetramer of claim 29, and~~
quantifying cytotoxic T lymphocytes in peripheral blood or cytokine produced by such cytotoxic lymphocytes.
37. (currently amended) A cancer treatment and/or amelioration method comprising administering ~~one or more of the following (a) to (d)~~ to a human having HLA-A2402 as a leukocyte antigen:
(a) ~~the peptide of claim 1 or 2~~
(b) ~~the antigen presenting cell of claim 14~~
(c) ~~the major histocompatibility antigen complex of claim 21 or 22~~
(d) ~~the major histocompatibility antigen complex tetramer of claim 29.~~

38. (currently amended) A cancer treatment or amelioration method comprising the steps of collecting mononuclear cell fraction from peripheral blood of a human patient having HLA-A2402 as a leukocyte antigen,

culturing the mononuclear cell fraction with ~~one or more of the following (a) to (d):~~

~~(a) the peptide of claim 1 or 2~~

~~(b) the antigen-presenting cell of claim 14~~

~~(c) the major histocompatibility antigen complex of claim 21 or 22~~

~~(d) the major histocompatibility antigen complex tetramer of claim 29, and~~

returning to the patient's blood the mononuclear cell fraction in which cytotoxic T lymphocytes are induced and/or activated.

39. (currently amended) A method of inducing cytotoxic T lymphocytes comprising administering ~~one or more of the following (a) to (d)~~ to a human having HLA-A2402 as a leukocyte antigen:

~~(a) the peptide of claim 1 or 2~~

~~(b) the antigen-presenting cell of claim 14~~

~~(c) the major histocompatibility antigen complex of claim 21 or 22~~

~~(d) the major histocompatibility antigen complex tetramer of claim 29.~~

40. (currently amended) A cancer treatment or amelioration method comprising administering the cytotoxic T lymphocyte of claim 30 ~~or 31~~ to a human having HLA-A2402 as a leukocyte antigen.

41. (currently amended) A major histocompatibility antigen complex tetramer of claim 21, wherein the tetramer is a complex comprising an HLA-A2402 molecule, a β 2 microglobulin, and the peptide, wherein the peptide is any one of (1) to (6) below:

(1) a peptide consisting essentially of the amino acid sequence represented by

SEQ ID NO: 1

(2) a peptide consisting essentially of the amino acid sequence represented by

SEQ ID NO: 2

(3) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:1 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such lymphocytes

(4) a mutant peptide consisting essentially of an amino acid sequence derived from the amino acid sequence represented by SEQ ID NO:2 by addition, deletion or substitution of one or more amino acids, the peptide being capable of forming a complex with an HLA-A2402 molecule to be recognized by HLA-A2402-restricted cytotoxic T lymphocytes or induce such a lymphocytes.

(5) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 1

(6) a peptide consisting essentially of the amino acid sequence represented by SEQ ID NO: 2 of claim 1 or 2 or the tumor antigen epitope peptide present on the antigen-presenting cell of claim 14.

42. (original) A cancer vaccine comprising the histocompatibility antigen complex tetramer of claim 41 as an active ingredient.

43. (original) A cancer vaccine of claim 42, wherein the cancer is an epithelial cancer.

44. (currently amended) A cancer vaccine of claim 42 ~~or 43~~, wherein the cancer is selected from the group consisting of large intestinal cancers, lung cancers, breast cancers, gastric cancers, buccal cancers, pancreatic cancers, esophageal cancers, nasopharyngeal cancers, uterine cancers, prostate cancers, and gallbladder cancers.

45. (currently amended) A cancer vaccine of claim 42 ~~any one of claims 42 to 44~~ which is useful for treating human having HLA-A2402 as a leukocyte antigen.

46. (original) A cytotoxic T lymphocyte inducer comprising the major histocompatibility antigen complex tetramer of claim 41.

47. (original) A cytotoxic T lymphocyte inducer of claim 46 which is useful for treating human having HLA-A2402 as a leukocyte antigen.

48. (new) A cytotoxic T lymphocyte which is obtained by stimulating peripheral blood lymphocytes using the antigen-presenting cell of claim 14.

49. (new) A cytotoxic T lymphocyte which is obtained by stimulating peripheral blood lymphocytes using the major histocompatibility antigen complex of claim 21.

50. (new) A cytotoxic T lymphocyte which is obtained by stimulating peripheral blood lymphocytes using the major histocompatibility antigen complex tetramer of claim 29.

51. (new) A method of quantifying HLA-A2402-restricted cytotoxic T lymphocytes in peripheral blood, comprising making the following act on peripheral blood: the antigen-presenting cell of claim 14, and

quantifying cytotoxic T lymphocytes in peripheral blood or cytokine produced by such cytotoxic lymphocytes.

52. (new) A method of quantifying HLA-A2402-restricted cytotoxic T lymphocytes in peripheral blood, comprising making the following act on peripheral blood: the major histocompatibility antigen complex of claim 21, and

quantifying cytotoxic T lymphocytes in peripheral blood or cytokine produced by such cytotoxic lymphocytes.

53. (new) A method of quantifying HLA-A2402-restricted cytotoxic T lymphocytes in peripheral blood, comprising making the following act on peripheral blood: the major histocompatibility antigen complex tetramer of claim 29, and

quantifying cytotoxic T lymphocytes in peripheral blood or cytokine produced by such cytotoxic lymphocytes.

54. (new) A cancer treatment and/or amelioration method comprising administering to a human having HLA-A2402 as a leukocyte antigen the peptide of claim 14.

55. (new) A cancer treatment and/or amelioration method comprising administering to a human having HLA-A2402 as a leukocyte antigen the major histocompatibility antigen complex of claim 21.

56. (new) A cancer treatment and/or amelioration method comprising administering to a human having HLA-A2402 as a leukocyte antigen the major histocompatibility antigen complex tetramer of claim 29.

57. (new) A cancer treatment or amelioration method comprising the steps of collecting mononuclear cell fraction from peripheral blood of a human patient having HLA-A2402 as a leukocyte antigen, culturing the mononuclear cell fraction with the antigen-presenting cell of claim 14, and

returning to the patient's blood the mononuclear cell fraction in which cytotoxic T lymphocytes are induced and/or activated.

58. (new) A cancer treatment or amelioration method comprising the steps of collecting mononuclear cell fraction from peripheral blood of a human patient having HLA-A2402 as a leukocyte antigen, culturing the mononuclear cell fraction with the major histocompatibility antigen complex of claim 21, and

returning to the patient's blood the mononuclear cell fraction in which cytotoxic T lymphocytes are induced and/or activated.

59. (new) A cancer treatment or amelioration method comprising the steps of collecting mononuclear cell fraction from peripheral blood of a human patient having HLA-A2402 as a leukocyte antigen, culturing the mononuclear cell fraction the major histocompatibility antigen complex tetramer of claim 29, and

returning to the patient's blood the mononuclear cell fraction in which cytotoxic T lymphocytes are induced and/or activated.

60. (new) A method of inducing cytotoxic T lymphocytes comprising administering to a human having HLA-A2402 as a leukocyte antigen the antigen-presenting cell of claim 14.

61. (new) A method of inducing cytotoxic T lymphocytes comprising administering to a human having HLA-A2402 as a leukocyte antigen the major histocompatibility antigen complex of claim 21.

62. (new) A method of inducing cytotoxic T lymphocytes comprising administering to a human having HLA-A2402 as a leukocyte antigen the major histocompatibility antigen complex tetramer of claim 29.